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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,087	02/11/2002	Danilo Pau	851763.415	7273

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SEED INTELLECTUAL PROPERTY LAW GROUP PLLC
701 FIFTH AVE
SUITE 6300
SEATTLE, WA 98104-7092

EXAMINER

REKSTAD, ERICK J

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/075,087	Applicant(s) PAU ET AL.	
	Examiner Erick Rekstad	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-18, 20-32 and 34-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-18, 20-32 and 34-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is a Final Rejection for application no. 10/075,087 in response to the amendment filed on April 7, 2005 wherein claims 1-4, 6-18, 20-32 and 34-42 are presented for examination.

Response to Arguments

Applicant's arguments with respect to claims 1-4, 6-18, 20-32 and 34-42 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

Claims 1, 13, 14 and 29 are objected to because of the following informalities:

In regards to claims 1 and 29, the amendment to the claims has been placed after the "transferring said second portions to said output bitstream" this may be interpreted as performing the amended steps after the transferring which is not supported by the specifications.

In regards to claim 13, the claim states "The process according to claims 10" it should state "the process according to claim 10".

In regards to claim 14, the claim states "The process according to any one of claims 10" it should state "The process according to claim 10".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2613

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6, 7, 10, 14-18, 20, 21, 24, 28-32, 34, 35, 38 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,926,573 to Kim et al. in view of US Patent 6,181,711 to Zhang et al. and further in view of 'Adaptive Motion-Vector Resampling for Compressed Video Downscaling' to Shen et al.

[claims 1, 6, 15, 20, 29 and 34]

As for claims 1, 15, and 29, Kim teaches of distinguishing, in said MPEG input bitstream, first portions that substantially do not affect and second portions that substantially do affect variation of the resolution of the MPEG output bitstream (Note: Figure 1 shows the bitstream being broken into header information (non-affecting) and DCT coefficients (affecting portion), Column 5, Lines 16-33), subjecting said second portions of the MPEG input bitstream to a function of modification of the resolution obtained by filtering said second portions in a discrete cosine transform domain (Figure 1 (Reference Number 120)., and transferring said second portions to said output bitstream (Note: Figure 1 shows the filtered DCT coefficients being transferred to the OBS (i.e. output bitstream).

Kim does not teach of subjecting said second portions of the input bitstream to an inverse-quantization operation and to a motion compensation operation, and subjecting second portions of the input bitstream to an inverse VLC function prior to said inverse-quantization operation is performed, however Zhang does (See Figure 2B, paths A and C respectively). It would have been obvious to one of ordinary skill in the art at the time of the invention to take any of the paths in Figure 2B so that the more

Art Unit: 2613

time consuming inverse transform and motion compensation would not have to be performed which would allow for quicker computations. One of ordinary skill in the art would have been motivated to do so because of the general teaching of Zhang which allows for any path to be taken depending of the need of the data (i.e. more accuracy or quicker processing).

Kim and Zhang do not teach the transformation of the motion vectors as required by the claims. Shen teaches the use of the transformation process as required by the claims in order to provide accurate motion vectors for downsampled video (Section II. Adaptive Motion Vector Resampling, Pages 930-932). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the motion vector resampling method of Shen with the downscaling system of Kim and Zhang in order to provide accurate motion vectors as taught by Shen.

[claims 2, 16 and 30]

As for claims 2, 16, and 30, most of the limitations of the claims are contained in the above rejection of claims 1, 15, and 29. Kim does teach of filtering in the domain of the discrete cosine transform (Figure 1). Kim does not teach of taking the filtered data and subjecting it to an inverse discrete cosine transform function to generate decompressed data with modified resolution that are perceptible during generation of said output bitstream with modified resolution, however, Zhang does (Note: See Figure 2B). It would have been obvious to one of ordinary skill in the art at the time of the invention to take path B in Figure 2B so that the more time consuming motion compensation would not have to be performed which would allow for quicker

computations. One of ordinary skill in the art would have been motivated to do so because of the general teaching of Zhang which allows for any path to be taken depending of the need of the data (i.e. more accuracy or quicker processing).

[claims 3-4, 17-18 and 31-32]

As for claims 3-4, 17-18, and 31-32, Kim teaches of an operation of selectively varying a quantization-scaling code between said input bitstream and said output bitstream and thus being reliant on the resolution (Column 9, Lines 12-14).

[claims 7, 21, and 35]

As for claims 7, 21, and 35, most of the limitations of the claims are contained in the above rejection of claim 1. Kim does not teach of storing said second portions of the input bitstream subjected to motion compensation with a resolution corresponding to the modified resolution of said output bitstream, however, Zhang does (Note: Figure 5 shows the motion compensation being joined with the resolution change as mentioned in Column 12, Lines 54-59). It would have been obvious to one of ordinary skill in the art at the time of the invention to store the motion compensation with the modified resolution so that the two could be multiplexed back into the same bitstream in order to be transmitted through a single channel.

[claims 10, 24, and 38]

As for claims 10, 24, and 38, most of the limitations of the claim are contained in the above rejection of claims 1, 15, and 29. Kim does teach of filtering operation in the domain of the discrete cosine transform comprises the operations of: storing a given number of macroblocks aligned on one and the same line (Column 7, Lines 34-50). Kim

Art Unit: 2613

does not explicitly teach of multiplying said macroblocks by at least one matrix with a scaled definition factor, however, it would have been obvious to one of ordinary skill in the art at the time of the invention to take the macroblock numbers which are being stored in matrix form (as taught by Kim) and multiply them by another matrix which contains numbers (i.e. scaled definition factor) which can eliminate the high or low frequency components (Kim teaches that you can filter out the high frequencies in some cases or do nothing in others, which is easily done with matrix). Since the numbers are stored in matrix form an efficient way to eliminate the unwanted frequencies would be to multiply it by another matrix. This method is clearly obvious to one of ordinary skill in the art. One of ordinary skill in the art would have been motivated to do so in order to be able to pick and choose which specific frequencies they wanted eliminated and to do so in an efficient manner. (Official Notice)

[claims 14, 28, and 42]

As for claims 14, 28, and 42, Kim teaches of given number of macroblocks comprises at least three macroblocks (Column 7, Lines 39-50).

Claims 8-9, 22-23, and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 5,926,573) in view of Zhang (US 6,181,711) and Shen ('Adaptive Motion-Vector Resampling for Compressed Video Downscaling') in further view of Takahashi (US 2002/0003838).

[claims 8-9, 22-23 and 36-37]

As for claims 8-9, 22-23, and 36-37, most of the limitations of the claims are contained in the above rejection of claim 7. Kim does not teach of carrying out said

Art Unit: 2613

motion compensation by operating on said second portions of the subjected to inverse quantization with a first resolution corresponding to the input bitstream resolution of said input bitstream, subjecting said data that have undergone motion compensation to a first operation of modification of said first resolution into a second resolution corresponding to the resolution of said output bitstream, storing said data subjected to motion compensation with said second resolution, and generating prediction data for said motion compensation starting from the data stored with said second resolution by subjecting the stored data to a second operation of modification of the resolution that brings back the resolution of the stored data from said second resolution to said first resolution and wherein said second resolution is a resolution lower than said first definition, however, Takahashi does (Paragraph (00133)). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the lower resolution for predictive purposes in order to allow for less computational burden on the invention.

Claims 11-13, 25-27, and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 5,926,573), Zhang (US 6,181,711) and Shen ('Adaptive Motion-Vector Resampling for Compressed Video Downscaling') as applied to claim 10, 24 and 38, in further view of Sita (US 6,539,120).

[claims 11-13, 25-27 and 39-41]

As for claims 11-13, 25-27, and 39-41, most of the limitations of the claims are contained in the above rejection of claims 10, 24, and 38. Kim does not teach of the operation of storing either/both a given number of macroblocks aligned on one and the same horizontal line and a given number of macroblocks aligned on one and the same

Art Unit: 2613

vertical line, so that said definition factor is scaled either/both in the horizontal direction and in the vertical direction, however, Sita does (Column 17, Lines 9-23). It would have been obvious to one of ordinary skill in the art at the time of the invention to take a horizontal or vertical filter and apply it to the DCT in order to allow for easier computational mathematics as apposed to doing so in the frequency domain (a shift as apposed to a convolution).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6,647,061 to Panusopone et al.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Rekstad whose telephone number is 571-272-7338. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erick Rekstad
Examiner *ER*
AU 2613
(571) 272-7338
erick.rekstad@uspto.gov

GIMS PHILIPPE
GIMS PHILIPPE
PRIMARY EXAMINER